Turkey Anatomy

In his sarcastic letter (24 Sept., p. 1191) concerning the publication by the Atomic Energy Commission of the *Atlas of the Domestic Turkey* (Meleagris gallopavo): *Myology and Osteology* by E. B. Harvey *et al.*, Abrahamson's major complaint appears to be against the utilization of appropriated funds to support a study which, in his opinion, has no place in the work of the AEC. The implication in the letter that the study was underwritten in its entirety by the AEC is highly misleading. In a portion of the preface to the atlas which Abrahamson chose to ignore, the authors clearly indicated that the research was financed by private contributions and by small grants from agencies not affiliated with the AEC, and that only the "final steps necessary to the publication" and the actual costs of publication were absorbed by the AEC.

Perhaps the greater question, however, is the validity of Abrahamson's complaint that poultry anatomy studies do not belong within the AEC's "mission." That irradiation produces pathological effects is axiomatic. Pathological conditions—in any animal—can be recognized only by comparison with the "normal" conditions. The intended function of the atlas was to describe the "normal" condition of the domestic turkey. It is important, for economic reasons, to understand the effects of radiation on domestic and wild animal populations. The first step in any such study is to ascertain the normal condition, including the range of variation and the naturally occurring abnormalities. This information is, in our opinion, not yet available in sufficient detail for any species of domesticated birds to provide the foundation for investigation of radiation effects.

The growth and development of the poultry industry is economically important not only in this country but in developing countries. In one of his quips Abrahamson refers to the "nearly 100 million domestic turkeys" produced annually to provide food for the American consumer. What he does not mention is the economic loss that results because large numbers of these birds never reach the processors owing to pathological conditions about which little is known.

The utilization of domestic fowl in AEC research is not new; the reader can be referred to the bibliographies given in studies by Quisenberry and Atkinson (*1*) and Lucas and Denington (*2*), in which effects of body irradiation on reproductive performance and blood composition in domestic chickens were studied.

Abrahamson's comments constitute a specious review of the atlas. Since the volume has not received regular treatment in the book review section of *Science*, Abrahamson's comments are the only ones on the work which many readers of *Science* will see. It is poor taste to select such a work as a vehicle for a humorous exercise or for the purpose of emphasizing a personal disagreement with the policies of a particular agency. When such disagreement exists, it would seem proper to us that the target for complaint should be the policy and not, as in this instance, the research which was thought to be the result of that policy.

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2. A. M. Lucas and E. M. Denington, *ibid.* **36**, 1290 (1957).

Newton, the Politician

In his illuminating article "Reflections on the decline of science in America and on some of its causes" (2 July, p. 27) Arnold Thackray makes a slip when he writes of Isaac Newton's "movement from Cambridge professor . . . to minor state functionary." Presumably he is thinking of Newton's tenure as Warden of the Mint; although not generally realized, this was an instance of a scientist making a political contribution of great importance.

Macaulay deals fully with the matter in chapters 21 and 22 of his *History of England* (*1*). "The silver coin, which was then the standard coin of the realm, was in a state at which the boldest and most enlightened statesmen stood aghast." Continual clipping of minute pieces of silver from the irregular edges of the hammered coins greatly reduced their weight. "At length in the